

- Application No. 10/517,309
- Reply to Office Action of May 31, 2006

### REMARKS/ARGUMENTS

Claims 13-35 are active in this case.

Support for the claims is found in the originally presented Claims 1-12, the sequence listing, the specification on page 6 and page 27. In addition, support for : “a fragment of a protein of the inner membrane of the chloroplast envelope, said fragment having at least 70% identity with said region 60-100” can be found for instance from page 6 line 20 to page 7 line 15 of the application as filed. Support for “said protein being recognized by antibodies directed against the polypeptide SEQ ID NO: 1” can be found for instance in Example 3, which shows that antibodies produced against the recombinant Arabidopsis 1E4 1 can be used to purify spinach 1E4 1.

The claims are also directed to the elected subject matter of Group I delineated in the Restriction Requirement o March 24, 2006.

No new matter is believed to have been added by these amendments.

In view of the amended claims, Applicants request reconsideration of all outstanding rejections.

The rejection under 35 USC 102(b) in view of Alexandrov is no longer applicable as Claims 1-5 have been cancelled. Claims 13-35 are not anticipated by this disclosure because Alexandrov does not describe the isolated polypeptide consisting of the specific sequences defined in domains A and B of the claims.

More particularly, Alexandrov discloses a protein SEQ ID NO:1332 that includes a portion that is identical to amino acids 49-59 of SEQ ID NO:1 and a sequence (SEQ ID NO:49547) having identity with SEQ ID NO:4. SEQ ID NO:1332 is 262 amino acids in length while SEQ I DNO:49547 is 324 amino acids in length.

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Alexandrov, however, does not describe the claimed sequence consisting of domain B at the N-terminal end of domain A where domain B consists of amino acids 1-59 of SEQ ID NOS: 1 or 3; or fragments of this sequence as defined in the claims; and domain A which consists of amino acids 60-100 of SEQ ID NOS: 1 or 3; or fragments of this sequence as defined in the claims. In other words, at most the isolated polypeptide would include amino acids 1-100 of SEQ ID NOS: 1 or 3; something that Alexandrov does not disclose.

Accordingly, withdrawal of this rejection is requested.

The rejection of Claims 1-5 under 35 USC 112, first paragraph (Written Description) is no longer applicable as these claims have been cancelled. As this rejection may be applied to Claims 13-35, the rejection is respectfully traversed.

Certainly there can be no dispute that the application describes SEQ ID NO:1 (which is an Arabidopsis sequence) and SEQ ID NO:3 (which is a spinach sequence). In addition, the application clearly also describes two portions of these sequences which are involved in plastid targeting, identified as SEQ ID NOS:4 and 5.

The disclosure of these sequences provides the necessary representative disclosure to support the claims as filed herein. Moreover, it should be noted that the percent identity between regions 60-100 of spinach and arabidopsis 1E41 is of about 75% (31 of 41 amino acids are identical) and the identity between regions 1-59 of spinach and arabidopsis 1E41 is of about 66% (39/59) and falls to 64% (35/54) when calculated on region 6-59.

In addition to these sequences which are defined in the claims, the specification discloses several other sequences aligned with the above two, referring to the discussion on page 22 and shown in Figure 7.

The specification also has defined which portions of SEQ ID NOS 1 and/or 3 are important for activity, i.e., intraplastid targeting and therefore, Applicants have disclosed a

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structure function relationship of the disclosed sequences that allows on to know that the Applicants were, in fact, in possession of the invention as now claimed.

Moreover, this rejection is not deemed to be applicable to Claims 33-35 which define specific regions of SEQ ID NOS: 1 or 3 nor Claims 30-32 which define specific regions of SEQ ID NO:1 or 3 that are 95% identical thereto.

Accordingly, Applicants request withdrawal of this ground of rejection.

The rejection of Claims 1-5 under 35 USC 112, first paragraph (Enablement) is no longer applicable as these claims have been cancelled. As this rejection may be applied to Claims 13-35, the rejection is respectfully traversed.

As established in relation to the written description rejection above, the specification adequately describes and supports the invention as now claimed. Moreover, it is clear that one of skill in the art can easily isolate any of the regions of the polypeptides SEQ ID NO: 1 and SEQ ID NO: 3 which are listed in the claims.

Further, on the basis of the information provided by the specification (see example 3), one of skill in the art is able, without undue experimentation, to purify from the chloroplasts of any plant, a protein which is recognized by antibodies directed against Arabidopsis 1E4 1, and to obtain the corresponding cDNA (see example 4). Alternatively, an expression library of cDNAs of any plant can be screened with antibodies against Arabidopsis 1E4 1.

Once a cDNA is obtained it can easily be sequenced, and the region of the deduced polypeptide having the percent identity with the regions of SEQ ID NO: 1 or SEQ ID NO: 3 can easily be identified and isolated.

Thus, the amount of experimentation necessary to practice the present invention does not represent undue experimentation. In addition, it would not require undue experimentation

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to determine whether such would have the activity of intraplastid targeting based on the guidance provided in the specification for how this is done.

Additionally, Applicants submit herewith a Declaration (currently in unexecuted form) demonstrating that region 6-100 of spinach 1E4 1 has been fused to GFP, and the construct has been introduced in tobacco cells, using the protocol disclosed in Example 5 of the instant application. These results show that the region 6-100 of spinach 1E4 1, although having only 70% identity with the region 6-100 of Arabidopsis 1E4 1, has the same properties of intraplastidial targeting.

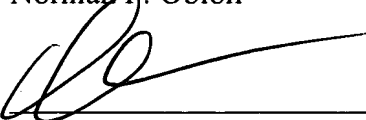
Accordingly, withdrawal of this rejection is requested.

The rejections against Claims 6 and 7 under 112, second paragraph and 101 are no longer applicable as these claims have been cancelled.

A Notice of Allowance for Claims 13-35 is also requested.

Respectfully submitted,

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